

What is claimed is

1. A ribonucleic acid comprising a double stranded structure having a first and second strand,

wherein the first strand comprises a first stretch of contiguous nucleotides that is at least partially complementary to a target nucleic acid,

wherein the second strand comprises a second stretch of contiguous nucleotides that is at least partially identical to a target nucleic acid, and

wherein the double stranded structure is blunt ended at one end or at both ends.

2. A ribonucleic acid comprising a double stranded structure having a first strand and a second strand,

wherein the first strand comprises a first stretch of contiguous nucleotides that is at least partially complementary to a target nucleic acid, and optionally comprises a second stretch that is non-complementary to said target nucleic acid,

wherein the second strand comprises a second stretch of contiguous nucleotides that is at least partially identical to a target nucleic acid, and optionally comprises a second stretch having a sequence that differs from said target nucleic acid, and

wherein said first stretch and/or said second stretch have a length of 18 or 19 nucleotides.

3. The ribonucleic acid according to claim 1, wherein said first stretch and/or said second stretch have a length of 18 or 19 nucleotides.

4. The nucleic acid according to claim 1, wherein the double stranded structure is blunt ended on both ends of the double strand.

5. The nucleic acid according to claim 3, wherein the double stranded structure is blunt ended on both ends of the double strand.

6. A ribonucleic acid comprising a double stranded structure having a first and second strand,

wherein the first strand comprises a first stretch of contiguous nucleotides that is at least partially complementary to a target nucleic acid,

wherein the second strand comprises a second stretch of contiguous nucleotides that is at least partially identical to a target nucleic acid, and

wherein at least one strand has an overhang of at least one nucleotide at the 5'-end.

7. The ribonucleic acid according to claim 6, wherein said overhang consists of at least one nucleotide selected from the group consisting of ribonucleotides and deoxyribonucleotides.

8. The ribonucleic acid according to claim 7, wherein the overhang comprises at least one nucleotide having a modification selected from the group consisting of inverted abasic nucleotides and nucleotides having an NH₂-modification at the 2'-position.

9. The ribonucleic acid according to claim 7, wherein one of the strands has an overhang of at least one nucleotide at the 3'-end selected from the group consisting of ribonucleotide and deoxyribonucleotide.

10. The ribonucleic acid according to claim 1, comprising at least one nucleotide having a modification at the 2'-position, wherein said modification is selected from the group consisting of fluoro, methoxy, alkoxy and alkyl.

11. A ribonucleic acid comprising a double stranded structure having a first and second strand,

wherein the first strand comprises a first stretch of contiguous nucleotides that is at least partially complementary to a target nucleic acid,

wherein the second strand comprises a second stretch of contiguous nucleotides that is at least partially identical to a target nucleic acid,

wherein said first strand and/or said second strand comprises a plurality of groups of modified nucleotides having a modification at the 2'-position,

wherein each group of modified nucleotides within a strand is flanked on one or both sides by a flanking group of nucleotides,

wherein said flanking nucleotides forming the flanking group of nucleotides is either an unmodified nucleotide or a nucleotide having a modification different from the modification of the modified nucleotides.

12. The ribonucleic acid according to claim 11, wherein each of said groups of modified nucleotides consists of one to ten nucleotides and wherein each of said groups of flanking nucleotides consists of one to ten nucleotides.

13. The ribonucleic acid according to claim 11, wherein the pattern of modified nucleotides of said first strand is the same as the pattern of modified nucleotides of said second strand.

14. The ribonucleic acid according to claim 11, wherein the pattern of modification of said first strand aligns with the pattern of modification of said second strand.

15. The ribonucleic acid according to claim 11, wherein the pattern of modification of said first strand is shifted by one or more nucleotides relative to the pattern of modification of the second strand.

16. The ribonucleic acid according to claim 11, wherein said modification is selected from the group consisting of amino, fluoro, methoxy, alkoxy and alkyl modifications.

17. The ribonucleic acid according to claim 11, wherein said double stranded structure is blunt ended at one or both ends.

18. The ribonucleic acid according to claim 11, wherein at least one of the two strands has an overhang of at least one nucleotide at the 5'-end.

19. The ribonucleic acid according to claim 1, wherein the complementarity between said first strand and the target nucleic acid is perfect.

20. The ribonucleic acid according to claim 1, wherein the duplex formed between the first strand and the target nucleic acid comprises at least 15 nucleotides and wherein there is one mismatch or two mismatches between said first strand and the target nucleic acid in said double-stranded structure.

21. The ribonucleic acid according to claim 11, wherein said first strand and said second strand each comprise at least one group of modified nucleotides and at least one flanking group of nucleotides, wherein each group of modified nucleotides of the first strand is aligned with a flanking group of nucleotides on the second strand, wherein the terminal 5' nucleotide of the first strand is a modified nucleotide, and wherein the terminal 3' nucleotide of the second strand is a flanking nucleotide.

22. The ribonucleic acid according to claim 21, wherein each group of modified nucleotides consists of a single nucleotide and/or each flanking group of nucleotides consists of a single nucleotide.

23. The ribonucleic acid according to claim 22, wherein on the first strand the nucleotide forming the flanking group of nucleotides is an unmodified nucleotide which is arranged in a 3' direction relative to the nucleotide forming the group of modified nucleotides, and wherein on the second strand the nucleotide forming the group of modified nucleotides is a modified nucleotide which is arranged in 5' direction relative to the nucleotide forming the flanking group of nucleotides.

24. The ribonucleic acid according to claim 1 wherein the first strand and the second strand are linked by a loop structure.

25. The ribonucleic acid according to claim 11 wherein the first strand and the second strand are linked by a loop structure.

26. The ribonucleic acid according to claim 25, wherein said loop structure comprises a non-nucleic acid polymer.

27. The ribonucleic acid according to claim 25, wherein said loop structure is comprised of a nucleic acid.

28. A method for inhibiting the expression of a target gene, comprising contacting a nucleic acid encoding said target gene with a ribonucleic acid according to claim 1.

29. A pharmaceutical composition comprising a ribonucleic acid according to claim 1 and a pharmaceutically acceptable carrier.

30. A method of treating a disease in a patient, comprising reducing expression of a target gene in said patient by administering to said patient a ribonucleic acid according to claim 1.

31. A cell comprising a ribonucleic acid according to claim 1.

32. An organism comprising a cell according to claim 31.